

REMARKS

The applicants thank examiners Tran and Lee for conducting an interview with the applicants' representative Misha Hill, by telephone on November 19, 2008. Mr. Hill explained that the intended meaning of "identification" and "which speaker" is an identification of the *type* of speaker, e.g., the manufacturer or size of the speaker, not simply whether a speaker is connected at each location. The claims are now amended to make this distinction clear.

The amendments to the independent claims remove the term "identification" and insert "which type" to clarify the claims and better reflect the terminology used in the specification. The claims have also been amended to use the same phrasing ("one or more speakers" of claim 1 is replaced by "speaker or speakers" from claim 21). Note that claim 21 originally included "whether and which," which the applicant previously replaced with "an identification"—"which" has been restored, with the addition of "type."

In the November 19 interview, when the applicant's intended meaning was explained, the examiners raised the question of whether there was support in the specification for claims to determining which *type* of speaker was installed. That the claimed system is able to determine the type of speaker is shown throughout the specification as a whole. For example:

On page 5, lines 21-25, the specification states "which speaker or speakers are connected *to each output*" (emphasis added) and "each speaker that may be connected ... is characterized by a signature impedance versus frequency curve." That the system determines "which" speaker is connected "to each output" shows that "which" itself was not meant to mean "which output," as suggested by the examiners, but rather, means "which type." Moreover, "a signature impedance versus frequency curve" is a unique attribute from which the type of speaker may be determined, not merely an identification of whether each speaker is attached.

On page 7, line 22 to page 8, line 5, the specification explains: "Because test circuit 150 knows the previously measured sense signal change characteristics or impedance of speakers, like speakers 115 and 120, at the specific frequency and

magnitude (or frequencies and magnitudes), test circuit 150 knows what the sense signal change or impedance is expected to be seen at the output of amplifier 105. For example, *if a particular tweeter and a particular mid-range speaker are expected to be connected* to the output of the amplifier 105, the *test circuit expects to see an impedance* at the output of the amplifier 105 *that corresponds to the known impedance curves of the tweeter and mid-range* at the probing signal frequency” (emphasis added).

On page 11, lines 15-24, it is explained in detail how the impedance is used to differentiate between two different types of speakers: “if only speaker 120 is connected to channel 110, then the impedance connected to amplifier 105 should be about 5.5 ohms at 20 KHz according to plot 310. If only speaker 115 is connected to channel 110, then the impedance connected to amplifier 105 should be about 12 ohms at 20 KHz.” The introduction to that example (page 11, line 9) states that such impedance measurements are used “to determine **which** speakers (115 and/or 120) are connected to channel 110” (emphasis added). This clearly uses “which” to mean “which type,” as the system is measuring the speakers’ different impedances at 20 HKz and looking at the specific values, not merely counting how many are attached, which would not draw distinctions between the impedances of different models of speaker.

The specific word “type” was used in the background to identify one problem the system was meant to solve (page 1, line 5, “the type of speaker that is connected”). The specification as a whole, and in the specific examples cited above, shows that this problem was solved, and uses the word “which” to describe the claimed determinations of a speaker’s type. While the applicant believes that the specification calls for this construction of “which,” the claims have been amended to specifically include “type” to resolve any ambiguity and avoid the need for recourse to the specification in construing the claims.

New claim 38 presents this feature differently, claiming, inter alia, a circuit to “determine a value indicative of which of at least two speakers having different impedances is connected” and is supported by the language of page 11.

The claims are patentable over the cited references for the reasons previously presented, i.e., none of the references, alone or in combination, describe determining which type of speaker is connected. The applicant believes the amendments described above resolve any ambiguity in the claims and render the current grounds of rejection moot, but repeats the relevant portions of the previous comments about the references below, modified as indicated to reflect the current claim wording:

Whitecar senses a change in the power output (at the DC Window Comparator 48, fig. 2) or operating state (at the SOAR blocks 34-41) of the amplifier, and uses this to determine whether the speaker is shorted to battery or ground, shorted to itself, or connected properly. ... Moreover, Whitecar does not describe and would not have made obvious “determining a value indicative of [which type of speaker or speakers are connected]” ...

Matsuomoto, and Porambo also describe systems for identifying open or short-circuited connections to speakers. Matsuomoto measures the current input to the stereo to determine whether the speaker connections are open or short. Porambo uses a clip detect feedback loop to detect whether the speaker connections are open or short. Neither describes or would have made obvious any way to identify the speakers [i.e., determine their type].

Krochmal applies a predetermined signal to the amplifier, but it then disconnects the amplifier and measures back-EMF on the output terminal to determine whether a speaker is present. Krochmal states that its system can identify speakers based on the back-EMF, and it makes this measurement after disconnecting the amplifier (see fig. 7, steps 53-55; col. 5, ll. 11-15). Krochmal does not describe identifying [i.e., determining the type of] speakers based on sensed change in power input when driving the amplifier in a predetermined manner.

